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farm-to-retail **price spreads**
for **fluid milk**

in Chicago



marketing research report no. 246

Marketing Research Division
Agricultural Marketing Service
U.S. Department of Agriculture

PREFACE

Intensified interest in the spread between the prices received by farmers for various products and the prices that the consumer pays for them led the Congress to request that the Agricultural Marketing Service, U. S. Department of Agriculture, make special studies of marketing costs and margins. This report is one of several in fulfillment of that request. It analyzes in some detail the factors that go into the making of fluid milk prices and marketing costs and margins in the Chicago market area. These studies are part of a national program of research to improve the marketing of farm products.

An analysis of fluid milk marketing costs and margins nationally through 1955 is presented in an earlier USDA report, "Marketing Costs and Margins for Fresh Milk," Miscellaneous Publication No. 733. Current farm-to-retail price spreads for fresh milk are reported quarterly in the USDA publication Marketing and Transportation Situation.

R. E. Olson, Market Organization and Costs Branch, Agricultural Marketing Service, participated in planning the study on which this report is based, and made some of the arrangements for collecting data. Thanks are due also to the several firms, cooperative and proprietary, that furnished information for the study.

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SUMMARY

Households which purchased milk in Chicago in May 1956 paid an average price of 21.5 cents a quart, this study indicates on the basis of a sample survey of 733 families. The equivalent farm price was 8.8 cents a quart; hence, the marketing margin was 12.7 cents a quart.

Householders purchase different kinds of fresh whole milk in a variety of types and sizes of containers, and from several kinds of sellers. When all these variations are taken into account, the average retail price and marketing margin are much lower than if one uses only the price of single quarts of milk delivered to homes.

It is not practicable to collect regularly all the information on which to base a complete accounting of the marketing margin for milk. Regularly published information about prices paid by milk dealers does not include price premiums paid to many producers or charges which producers pay for having their milk hauled from the farm to the milk plant. Regularly published retail price information also differs somewhat from average prices paid by consumers as found in this study. Despite these problems, an estimate of the marketing margin for May 1956, calculated from regularly published data, differed by only 0.6 cent a quart, or 5 percent, from the results of a more complete accounting.

The marketing margin based on single quarts of milk delivered to homes increased from 11.5 cents a quart in January 1947 to 16.5 cents a quart in December 1957. Based on a weighted average price for milk in different sizes of containers and in stores as well as delivered to homes, the marketing margin was 9.8 cents a quart in January 1947 and 12.1 cents a quart in December 1957.

The quart container of milk delivered to the home was a relatively unimportant fresh milk item in Chicago in May 1956, although it was once of major importance. This size of container and method of purchase accounted for only 6 percent of the milk bought by a sample of Chicago households. Most of the milk was bought in half-gallon and gallon containers. More than twice as much milk was bought from stores (68 percent) as from home delivery routes (31 percent). About 1 percent was bought from vending machines.

Average prices ranged from 19.7 cents a quart in gallon containers at stores to 24.7 cents a quart in quart containers delivered to homes. Individual purchases were made at prices ranging from 15 3/4 cents to 32 cents a quart.

The marketing margin for milk goes to a number of kinds of businesses that take part in getting milk from the farm to the consumer's doorstep. Country milk haulers, country milk plants, long-distance haulers, city bottling plants, vendors or subdealers, and retail stores of various kinds all provide needed services. About 59 percent of the consumer's dollar for fresh milk went for such services in Chicago in May 1956.

The "Marketing Margin"

The difference between the average price that consumers pay for a quart of milk and the payment the farmer receives for an equivalent quantity (2.18 pounds) of Class I milk is the "marketing margin" or "price spread," as discussed in this report. It includes all charges for assembling, processing, and distributing fluid milk. The payment received by the farmer is called the "farm value."

FARM-TO-RETAIL PRICE SPREADS FOR FLUID MILK IN CHICAGO

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INTRODUCTION

The price paid by consumers for milk includes the cost of a wide variety of marketing services in addition to the amount which the farmer receives. Traditionally, the farmer's share and the amount spent for marketing services have been measured by a simple calculation: The farm price per quart was subtracted from the retail price per quart, and the difference equaled the charge for marketing services.

Always there have been some problems in getting milk price information and in deciding on which price to use. Formerly, prices charged by sellers were quite uniform and milk was sold mainly in quart containers, so problems of getting and choosing price information were not too great. For this reason, price spreads calculated from prices reported during the 1920's and 1930's were reasonably satisfactory for most purposes. Price spreads calculated in one market could be compared with those in another and used as a measure of efficiency of milk distribution. But methods of marketing milk have changed in recent years. ^{1/} As a result, milk no longer sells at nearly uniform prices. It is delivered to customers in a variety of package sizes and types, each at a different price per quart. The price of milk in a quart bottle is no longer a satisfactory measure of the average price of all milk sold in all markets. With quantity discounts and, possibly, increased competition, there may even be uncertainty about the price for a given item in a given market. These questions have been raised more pointedly in the Chicago, Ill., market than perhaps in any other.

One purpose of this study was to learn how the results of a simple calculation of the price spread for milk would compare with a broader measure of the marketing margin on milk in the Chicago market. Another purpose was to describe the agencies involved and the services performed in moving milk from the farm to the consumer, and to measure some of the charges made for such services.

^{1/} Changing Patterns in Milk Distribution. Helen V. Smith and Louis F. Herrmann, Mktg. Res. Rept. No. 135, U. S. Dept. Agr., August 1956.

PRICES PAID BY CONSUMERS FOR FRESH WHOLE MILK

An average price of 21.5 cents per quart was paid for fresh whole milk by householders in Chicago during a 7-day period between May 23 and June 9, 1956 (table 1). This average is based on interviews with 733 families. ^{2/} Of the families interviewed, 650 purchased whole milk, skim milk, buttermilk, or chocolate drink on 2,317 occasions during the 7 days preceding the interview. They bought an average of 2.9 quarts per purchase.

One delivery of milk to the home was counted as 1 purchase, and a trip to the store or vending machine for milk was counted as 1 purchase. The average price of milk per quart, therefore, reflects all the variations in prices that result from purchasing different kinds of fresh whole milk (such as homogenized, vitamin-added, etc.) in different sizes of containers from retail stores and from home-delivery routes operated by milk dealers or vendors.

The lowest price, 15-3/4 cents per quart, was paid for a gallon of milk purchased at a store. The highest price, 32.0 cents per quart, was paid for one quart of milk in a quart container delivered to the home. These extremes are out of a total of 6,020 quarts of whole milk purchased during a 7-day period by the families in the survey, and for which the family reported the price paid.

Milk Delivered to Homes

A single quart of milk delivered to a home was the milk item for which prices usually were reported in the past. It is the item for which most price spreads, or "dealers' margins," were calculated. In this study, the average price of milk in quart bottles delivered to homes was found to be 24.7 cents. Analysis of purchases of home-delivered milk in quart containers showed that the average price was related to the quantity delivered. When only 1 quart was delivered at a time (there were 52 such purchases), the average price was 27.1 cents per quart (table 2). When 2 quarts were delivered at a time in quart containers, some householders paid less than the single-quart price. The average price for purchases of 2 quarts was 24.7 cents a quart; and for 4 to 7 quarts, 23.9 cents. The average quantity per delivery was 3.4 quarts.

The average price of milk delivered to homes in half-gallon containers was 23.1 cents per quart. Again, some of the householders who received 2 or more half-gallon containers of milk at a single delivery paid a lower price. The average price for 4 or more half-gallon containers was 21.5 cents a quart. Milk in gallon jugs purchased singly averaged 20.8 cents per quart; 2 or more at a time averaged 20.5 cents per quart.

^{2/} For information about the methods used in this study and the definitions followed in the various surveys, see p. 25.

Table 1.--Household purchases of fresh whole milk: Average prices and proportion of purchases by source of purchase and size of container, Chicago, Ill., 7 days, May-June 1956

Source	Size of container	Proportion purchased from		Average price	
		All sources	Specified source	Per container	Per quart
		Percent	Percent	Cents	Cents
Home delivery...	Quart	6.3	20.6	24.7	24.7
	Half-gallon	13.4	43.5	46.1	23.1
	Gallon	11.0	35.9	82.8	20.7
	All	30.7	100.0	0	22.6
Store.....	Quart	15.4	22.5	22.5	22.5
	Half-gallon	25.2	36.9	43.6	21.8
	Gallon	27.6	40.6	78.6	19.7
	All	68.2	100.0	0	21.1
Vending machine.	Quart	<u>1/</u>	<u>1/</u>	20.0	20.0
	Half-gallon	1.1	100.0	38.9	19.5
	Gallon	0	0	0	0
	All	1.1	100.0	0	19.5
All sources.....	Quart	21.7	0	23.2	23.2
	Half-gallon	39.7	0	44.4	22.2
	Gallon	38.6	0	79.8	20.0
	All	100.0	0	0	21.5

1/ Less than .05 percent.

Differences in size of containers and number of containers purchased per delivery do not exhaust the list of factors causing prices to vary. The price variation remaining can be illustrated with the data for half-gallon containers delivered to homes, 1 container at a delivery. There were 133 such purchases, 29 of them being at 45 cents per half-gallon, 7 as low as 40 cents, and 1 as high as 56 cents. The number of purchases at each price was as follows:

<u>Price per half gallon</u>	<u>Number of purchases</u>	<u>Price per half gallon</u>	<u>Number of purchases</u>
40	7	49	13
41	5	50	3
42	10	51	1
43	9	52	16
44	10	53	3
45	29	54	8
46	5	55	6
47	1	56	1
48	6		

Several factors contribute to the variation in prices shown. One is the fact that householders were not asked what kind of fresh whole milk they purchased. Dealers usually charge higher prices for milk with vitamin D; for milk from designated breeds of cattle; for milk with a higher-than-usual percentage of butterfat; or for other special milks. In addition to all these variations, prices charged for milk of any single description varied among sellers.

Competition on Home Delivery Routes

In planning the household interviews, it was considered possible that competition on home delivery routes might lead salesmen to offer discounts and other inducements to prospective customers. Careful questioning failed to disclose extensive solicitation. Twelve respondents had been solicited for milk business by dairy representatives or routemen during the 30 days preceding the interview. Five of these respondents reported offers of free milk or other dairy products during that period, and one reported an offer of other dairy products at bargain prices. Eight respondents had received offers of discounts or rebates. The vast majority of householders interviewed did not recognize the prices they paid as being discount prices, nor were the prices so indicated on the statements of account given by the routemen.

Milk Purchased at Stores

The average price of milk purchased at stores was 21.1 cents per quart, compared with 22.6 cents per quart for milk delivered to homes. The average quantity per purchase at stores was 2.7 quarts.

Prices paid at stores were affected much more by the size of container than by the number of containers purchased. The average price of 1-quart containers purchased singly was 22.8 cents per quart. One-quart containers purchased 2 at a time at stores had an average price of 22.5 cents per quart, the decline in price being less than in comparable transactions in home delivery (table 2). Similar price patterns occurred for half-gallon and gallon containers.

Table 2.--Household purchases of fresh whole milk: Average price per quart and proportion of quantities purchased, by size and source of purchase, Chicago, Ill., 7 days, May-June 1956

Source	Size of purchase	Proportion purchased in			Average price per quart		
		Quart	Half-	Gallon	Quart	Half-	Gallon
		containers	gallon	containers	containers	gallon	containers
		Percent	Percent	Percent	Cents	Cents	Cents
Home delivery.....	1	13.6	---	---	27.1	---	---
	2	32.6	33.0	---	24.7	23.5	---
	3	11.3	1.7	---	24.9	22.4	---
	4 to 7	42.0	49.4	75.3	23.9	23.3	20.8
	8 and over	.5	15.9	24.7	22.0	21.5	20.5
	Total	100.0	100.0	100.0	24.7	23.1	20.7
Store.....	1	36.1	---	---	22.8	---	---
	2	30.7	67.9	---	22.5	21.7	---
	3	11.7	1.6	---	23.8	23.8	---
	4 to 7	11.3	28.4	76.7	22.0	22.1	19.5
	8 and over	10.2	2.1	23.3	20.7	22.0	20.0
	Total	100.0	100.0	100.0	22.5	21.8	19.7
Vending machine.....	1	100.0	---	---	20.0	---	---
	2	0	56.2	---	0	19.0	---
	3	0	---	---	0	---	---
	4 to 7	0	43.8	0	0	20.0	0
	8 and over	0	0	0	0	0	0
	Total	100.0	100.0	0	20.0	19.5	0
All sources.....	1	29.6	---	---	23.4	---	---
	2	31.2	56.6	---	23.2	21.7	---
	3	11.6	1.6	---	24.1	23.2	---
	4 to 7	20.2	35.1	76.3	23.2	23.1	19.9
	8 and over	7.4	6.7	23.7	20.8	22.0	20.2
	Total	100.0	100.0	100.0	23.2	22.2	20.0

The remaining variation in prices of milk purchased at stores was considerably wider than the corresponding part of the variation in prices of milk delivered to homes. There were 515 purchases at stores of milk in half-gallon containers, 1 container at a time, 171 of these being at 41 cents per half-gallon 23 as low as 39 cents, and 1 as high as 52 cents. The number of purchases at each price was as follows:

<u>Price per half gallon</u>	<u>Number of purchases</u>	<u>Price per half gallon</u>	<u>Number of purchases</u>
39	23	46	22
40	23	47	34
41	171	48	6
42	56	49	23
43	43	50	23
44	5	51	1
45	84	52	1

Milk Purchased from Vending Machines

Six families reported that they purchased milk at vending machines. They purchased 65 quarts during the 7-day period preceding the interview, or only about 1 percent as much as was delivered to homes and purchased at stores. One single quart was purchased at 20 cents, 25 half-gallon containers at 40 cents, and 7 half-gallon containers at 35 cents. The average price was 19.5 cents a quart and the average size of purchase was 2.6 quarts.

PRICES PAID BY CONSUMERS FOR OTHER FLUID MILK PRODUCTS

Fresh fluid milk products other than fresh whole milk accounted for about 5 percent (309 quarts) of the total of 6,329 quarts reported with price data in the household survey.

Half of this was skim milk, nearly half was buttermilk, and the remainder, about one-tenth, was chocolate milk or chocolate drink (table 3). The average price was 23.3 cents per quart, the average price of chocolate milk being about 3 cents a quart higher than buttermilk and skim milk. Quart containers predominated for these products, in contrast to the usual packaging of whole milk.

COMPARISON OF RETAIL PRICE DATA FROM DIFFERENT SOURCES

The Department of Agriculture and the Bureau of Labor Statistics have reported the price of milk in Chicago for many years. In recent years, a private agency has compiled information on prices paid for various foods, milk included. These regularly published prices are used by the public for whatever purposes require such information, one of these purposes being to compare changes in retail prices with prices paid to farmers; another to compare retail prices in Chicago with prices in other cities.

Table 3.--Household purchases of skim milk, buttermilk, and chocolate milk:
Average prices and proportion of purchases by source of purchase and size of
container, Chicago, Ill., 7 days, May-June 1956

Source	Size of container	Proportions purchased from		Average price	
		All sources	Specified source	Per container	Per quart
		<u>Percent</u>	<u>Percent</u>	<u>Cents</u>	<u>Cents</u>
<u>Skim milk</u>					
Home delivery.....	Quart	39	94	24.7	24.7
	Half-gallon	<u>3</u>	<u>6</u>	<u>45.0</u>	<u>22.5</u>
	All	42	100	---	24.6
Store.....	Quart	55	96	21.3	21.3
	Half-gallon	<u>3</u>	<u>4</u>	<u>37.0</u>	<u>18.5</u>
	All	58	100	---	21.2
Home delivery and store combined.....	Quart	95	---	22.8	22.8
	Half-gallon	<u>5</u>	---	<u>41.0</u>	<u>20.5</u>
	All	100	---	---	22.6
<u>Buttermilk</u>					
Home delivery.....	Quart	13	80	25.2	25.2
	Half-gallon	<u>3</u>	<u>20</u>	<u>55.0</u>	<u>27.5</u>
	All	16	100	---	25.7
Store.....	Quart	79	94	23.0	23.0
	Half-gallon	<u>5</u>	<u>6</u>	<u>41.7</u>	<u>20.8</u>
	All	84	100	---	22.9
Home delivery and store combined.....	Quart	92	---	23.3	23.3
	Half-gallon	<u>8</u>	---	<u>47.0</u>	<u>23.5</u>
	All	100	---	---	23.3
<u>Chocolate milk and chocolate drink</u>					
Home delivery.....	Quart	14	100	26.8	26.8
Store.....	Quart	86	100	26.6	26.6
Home delivery and store combined.....	Quart	100	---	---	26.6

The survey made specially for the present report shows more about the structure of prices in Chicago than do any of the regular reports. For that reason, it is useful to compare the prices found in this survey with those regularly published, to provide a more complete understanding of milk prices in this market.

The comparison must consider the specifications of the respective series of data. These specifications are shown as footnotes to table 4.

The data from our survey are compared first with the prices published by Pure Milk Association. 3/ The largest difference was on quarts delivered to homes, for which the AMS household survey average price was 1.4 cents higher. Except for half-gallon containers delivered to homes, all the AMS household survey prices averaged higher than the prices reported by Pure Milk Association. The average of all purchases, not including vending machines, was 21.6 cents for the AMS survey and 20.9 for the Pure Milk Association data.

The AMS survey findings and the data from the AMS Fluid Milk and Cream Report on prices for milk delivered to homes are in approximate agreement. The survey average prices were consistently below the bottom of the ranges of prices shown in the latter. Highest prices found in the survey were for purchases of single containers (table 2). Single quarts were 27.1 cents, about the midpoint of the range in the Fluid Milk and Cream Report. But single half gallons at 47 cents and single gallons at 83.2 cents were at the bottom of the range.

AMS survey store prices, on the other hand, were higher than those reported in the Fluid Milk and Cream Report. The latter most closely represent chainstore prices. Prices are usually higher in independent stores, many of which provide services not available at chainstores.

The finding that the lower limit of the range of Fluid Milk and Cream Report prices agrees most closely with a weighted average of prices paid by householders is important to users of that report. The usual practice in using a range of prices is to take the midpoint. Since the situation in Chicago may be unique, these results may not apply to ranges reported for prices in other cities.

The final comparison is between the AMS survey and the BLS prices. The BLS quart figures departed widely from the weighted average--being 3.3 cents a quart higher for home delivery. Again, the price paid for single quarts delivered to homes in the AMS survey, 27.1 cents a quart, was closest to the BLS price. The BLS price is for homogenized vitamin D milk, which usually sells for 1 cent a quart more than homogenized milk without vitamin D. The store prices were in much closer agreement. The BLS prices at stores are taken for the largest selling size of container, quart or half gallon, but

3/ Retail Milk Lower. Pure Milk News Vol. 31, No. 8, August 1957. p. 12.

quarts were the item most frequently priced in May and June 1956. The BLS prices in stores, then, like the store prices in the Fluid Milk and Cream Report, are slightly lower than the AMS survey prices.

WEIGHTED AVERAGE RETAIL PRICES, 1947-1957

The preceding discussion has shown how wide is the difference between the weighted average of prices paid for milk by householders in Chicago and some of the currently published retail prices. For comparing margins over a period of time, the weighted average is a more meaningful figure. Using published information, it is possible to construct a series of weighted average retail prices for the years 1947 to 1957. This calculation reflects changes in prices, changes in the proportions purchased at stores and home delivered, and proportions purchased in each of the three sizes of containers.

Purchases of home-delivered milk made up 31 percent of total household purchases in 7 days in May-June 1956. This was only a slight decline from 1948, when a survey by BLS showed 35 percent of the total household purchases were delivered to homes. 4/ A percentage of home delivery was calculated for each of the intervening years.

Proportions of milk sold by dealers in quart, half-gallon, and gallon containers have been ascertained by the Federal milk market administrator in April of each year since 1949. The data for 1956 agree almost exactly with the overall proportions found in the household survey.

In the household survey, purchases of half gallons were 43.5 percent of all home deliveries, and only 36.9 percent of all purchases at stores. Purchases of gallons, on the other hand, were only 35.9 percent of home deliveries, but were 40.6 percent of purchases at stores. However, an average price for June 1956, weighted with the market administrator's proportions, differed only .01 cent from a price weighted by the proportions purchased in different sizes of containers as found in the household survey. Distributions of purchases by container size were, therefore, taken from the market administrator's data for 1949-1957. Earlier years were interpolated on the basis of data on sales by size of container for 1940. 5/

Prices for these calculations were taken from the Fluid Milk and Cream Report, using for home-delivered milk the lower side of reported ranges, because these agreed most closely with prices found in the household survey (see p. 8).

Weighted average prices calculated by this method were 5.04 cents a quart below the lowest single-quart price for home-delivered milk reported in the Fluid Milk and Cream Report in June 1956, and 7.04 cents per quart below the

4/ Fresh Milk Marketing in Large Cities. William O'Grady and Rosamond Foster, Bur. Labor Stats., Washington, D. C., January 1951.

5/ Prewar Developments in Milk Distribution. Louis F. Herrmann and William C. Welden, Farm Credit Admin., Misc. Rept. No. 62, November 1942.

home-delivered price reported by BLS (table 4). Nine years earlier, the spread between the different price series was smaller. In June 1947, the weighted average price was 1.7 cents and 1.2 cents below the other prices, respectively.

Table 4.--Fresh whole milk in Chicago: Prices from household survey and from regularly published sources, May-June 1956

Place of purchase	Unit	Household survey <u>1</u> /	Pure Milk Associa- tion <u>2</u> /	Fluid Milk and Cream Report <u>3</u> /	Bureau of Labor Statistics
		Cents	Cents	Cents	Cents
Home delivery...	Quart	24.7	23.3	<u>4</u> /26-28½	} <u>5</u> /28.0
	Half-gallon	46.1	46.8	46-56	---
	Gallon	82.8	82.4	84-106	---
	All (per quart)	22.6	21.5	---	---
Store.....	Quart	22.5	21.9	21	} <u>5</u> /21.8
	Half-gallon	43.6	41.6	41	---
	Gallon	78.6	77.3	<u>6</u> /77	---
	All (per quart)	21.1	20.7	---	---
Home delivery and store combined <u>7</u> /....	All	21.6	20.9	---	<u>8</u> /23.7

1/ Prices paid by householders for all purchases of fresh whole milk.

2/ Prices paid by householders for all fresh milk products. Source: Pure Milk News, Vol. 30, No. 8, Aug. 1956, p. 6.

3/ Selling prices for standard milk.

4/ For a single quart.

5/ Fresh, fluid milk, pasteurized, homogenized, vitamin D added, milk of lowest butterfat content over 3.25 percent meeting specification; quart or half-gallon; carton or bottle; excludes containers larger or smaller than those specified, premium-priced milk, all nonhomogenized milk, all milk without vitamin D added, certified raw milk, Guernsey milk.

6/ In May, 79 cents.

7/ Vending machine sales not included.

8/ Home delivery and store combined in the proportions shown in table 1.

The single-quart price fluctuated around an average of about $21\frac{1}{2}$ to 22 cents a quart from 1947 to 1950. By 1952, it had risen to about $25\frac{1}{2}$ cents, remaining at this level, with minor fluctuations, through the following 5 years (fig. 1). The weighted average price was 1.7 cents lower than the single-quart price in 1947. It rose less rapidly than the single-quart price until the fall of 1952; by then, it was about 2.3 cents under the single-quart price. From 1952 until the summer of 1955, the weighted average price declined to about 5 cents a quart under the single-quart price.

Retail prices of milk in Chicago rose most often in the months of July through October during 1947 to 1957. Downward changes in price were more widely scattered during the year, coming mainly in November, December, and February through July (table 5).

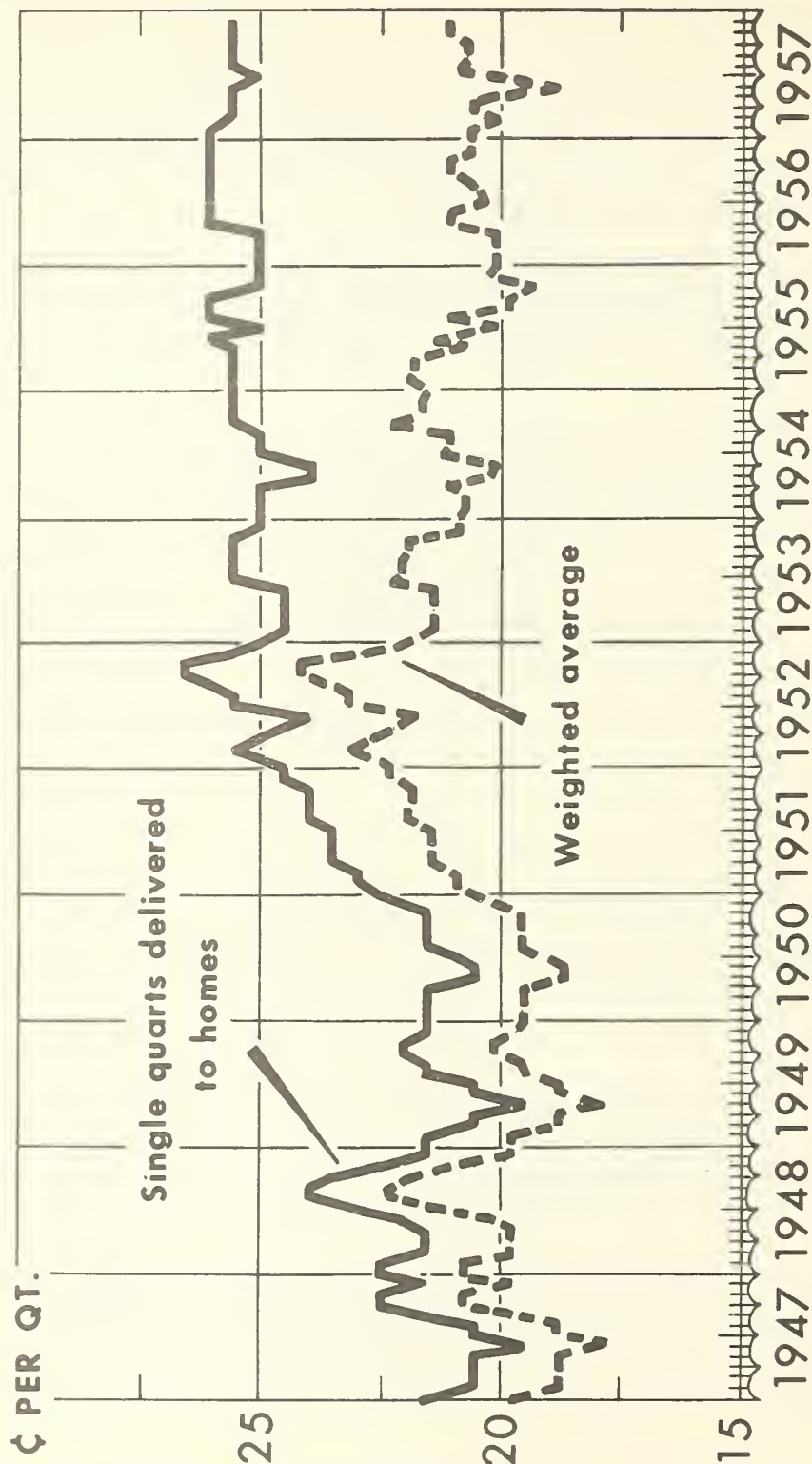
Table 5.--Milk in quart containers delivered to homes, number of price increases and decreases, Chicago, January 1947-December 1957

Month	Number of price increases	Number of price declines
January.....	2	1
February.....	2	2
March.....	1	3
April.....	1	1
May.....	1	4
June.....	3	2
July.....	6	2
August.....	6	-
September.....	2	-
October.....	4	1
November.....	-	2
December.....	2	5
Total.....	30	23

Changes in retail prices tend to coincide with changes in prices paid to milk producers.

The difference between the price for single quarts and the weighted average price changed during some periods because the prices for larger containers changed independently of the price for quart containers of milk. In the years 1955-57, the price of milk in larger containers has declined much more than the single-quart price in May and June, and has risen more in July and August.

PRICES OF FLUID MILK IN CHICAGO IN STORES AND DELIVERED TO HOMES



PRICES PER SINGLE QUART DELIVERED; WEIGHTED AVERAGE PRICES, IN STORE AND DELIVERED,
IN QUARTS, HALF GALLONS, AND GALLONS.

Figure 1

PRICES RECEIVED BY FARMERS

The regularly published information about prices paid to farmers for milk is precisely defined and accurately reported in a form useful for calculating one kind of marketing margin for milk. Nevertheless, there may be complications depending on adjustments for location of the plant to which the farmer delivers the milk and the butterfat content of the milk. In addition, there are several concepts of "prices paid to farmers" among which one may choose, and the regularly available data do not suffice for all these concepts.

For this study, operators of milk plants in Chicago and the surrounding milkshed supplied considerable detailed information about prices, charges, and methods of handling milk. The following section presents the results of this phase of the study, using as a benchmark the minimum prices to milk producers required under Federal Order No. 41.

Class I Prices

Under the order, the market administrator announces monthly the minimum prices to be paid by regulated milk dealers (handlers) for milk used in each of several specified use classes. The class prices are calculated according to a formula prescribed by the order. In addition to specifying the class of use, the announced price is for milk containing a specified percentage of butterfat, delivered by farmers to plants located within specified distances from the Chicago City Hall. The basic butterfat percentage under the Chicago order is 3.5 percent, and the basic zone for which prices are announced is Zone I, comprising the area within 70 miles of City Hall. When a milk dealer buys milk containing more or less than the basic butterfat percentage, the price is subject to a butterfat differential. Milk which the dealer receives from farmers at a plant in another zone and uses for Class I or Class II is subject to location differentials.

The price announced for Class I milk (the class to which bottled milk is assigned) in May 1956 was \$4.13 per 100 pounds, subject to a butterfat differential of 7.1 cents for each one-tenth percent that the butterfat content was above or below 3.5 percent, 6/ and subject to a deduction of 2 cents if the

6/ Order 41 does not specify a butterfat differential for class prices. The handler's obligation is computed as though all milk in Class I contained 3.5 percent of butterfat. If a handler used in Class I all the milk he purchased, his cost of milk would correspond to the Class I price adjusted by the butterfat differential applicable to the uniform price. Also, the price at which bulk milk is sold by one handler to another usually is calculated from the class price, adjusted to the butterfat percentage of the milk transferred by using the differential applicable to the uniform price. Other complications in computing the cost of milk to handlers under Order 41 are disregarded here, as their possible effects on prices are small. See "Methods of Costing Skim Milk and Butterfat," Louis F. Herrmann, 1955 Milk Industry Foundation Convention Proceedings, Accounting Section, pp. 15-22.

plant was between 70 and 85 miles from City Hall, 4 cents between 85 and 100 miles, and so on. For milk delivered to certain plants within the 70-mile zone, an additional amount had to be paid. In 1956, this additional amount was 4 cents if the plant was within the defined marketing area, and 2 cents if between the defined marketing area and the 55-mile zone.

Seasonal Changes

The formula for the price of Class I milk for each month under Federal Order 41 specifies an amount to be added to the basic formula price. From December 1954 through 1957, the amounts to be added were: 70 cents, March through June; 90 cents, December through February and in July; and \$1.10, August through November. It was mentioned previously that changes in retail prices tend to coincide with changes in prices to producers. As will be shown later, the marketing margins and certain marketing charges show some seasonal variation, despite the tendency of retail and farm prices to change together.

Blend Prices

From the standpoint of the marketing margin available to pay the costs of marketing bottled milk, the most important price paid by dealers is the Class I price which has just been described. Most milk plants are unable to sell as bottled milk all the milk they purchase. For milk used in the other classes, lower prices are paid. The farmer receives a price, commonly called the blend price or the uniform price, which is an average of the class prices weighted by the quantities used in each class. The uniform price is subject to a butterfat differential for milk containing more or less than 3.5 percent butterfat, and to a deduction, or location differential, if it was delivered to a plant located more than 70 miles from the market. At plants within 55 miles of City Hall, producers received a premium under the order of 10 cents above the uniform price. The average uniform price in May 1956 for 3.5 percent milk was \$3.64 per hundred-weight, subject to a butterfat differential, location differentials, and hauling deductions. 7/

The distinction between the Class I price and the uniform price is described here because a person not aware of the distinction may calculate a marketing margin based on the spread between the price of bottled milk and the uniform price to producers. If a marketing margin based on the uniform price must be calculated, the comparable selling price would be an average of the prices of at least the major products produced from Classes II, III, III-a, and IV under the Chicago order, as well as of Class I products.

7/ A further complication in prices paid to farmers in the Chicago market results from the base and excess plan of making payments to producers. The uniform price of \$3.64 was a weighted average of the base price and the excess price.

Hauling Costs

The farmer's share of the consumer's dollar is commonly considered to be what the farmer receives for his product as it is ready to leave the farm. The milk prices described above differ from this concept, in that the farmer pays the cost of having the milk hauled from his farm to the milk plant. Usually the milk plant withholds from the farmer's milk check the amount owed the hauler, and pays it to the hauler directly.

The market administrator summarized the records of hauling deductions at 64 plants throughout the milkshed for April 1956. There were 153 plants in the milkshed at that time. Of the 205 million pounds of milk delivered to the plants in the survey, hauling deductions were made on 193 million pounds. The average deduction was 18 cents per 100 pounds. The average deduction at plants in given zones ranged from a low of 15 cents to a high of 20 cents. The size of the zone averages did not show any relation to distance from Chicago.

The small quantity of milk on which no hauling deduction was made was mostly milk delivered by the farmers themselves.

Premiums and Other Payments

The prices established by Order 41 are minimum prices. The order does not prevent handlers from paying more. In fact, one or more of three kinds of premiums are commonly paid: Premiums for handling the milk at the farm in a bulk tank; "competitive" premiums, to equalize a plant's price with that of neighboring plants; and subsidy payments to milk haulers, where the farmer's net returns would be reduced unduly if he had to pay the full cost of hauling. A fourth kind of premium has sometimes been negotiated between producers and handlers in the Chicago market, a general or marketwide premium. When such a premium is paid, it is usually included in the price reported in the Fluid Milk and Cream Report.

Information as to the amount of current additions to the order price was obtained for this study from 2 large producer cooperative associations which operate country plants, 1 proprietary chain of country plants, and 13 milk dealers who were handlers under the order.

Milk dealers who distributed bottled milk in Chicago at the time of this study bought part of their milk directly from individual producers. Approximately 39 percent of these purchases were from producers having bulk tanks. The average premium for bulk milk was 19 cents per 100 pounds, or an average of 7 cents per 100 pounds of all milk purchased from producers.

The next most common payment was to milk haulers, 16 cents per 100 pounds on about 24 percent of the milk purchased from farmers, or 4 cents per 100 pounds of all milk purchased from producers. Such payments to haulers by milk dealers were in addition to the amounts deducted from payments to farmers. Milk dealers' payments to haulers did not directly increase the prices received by farmers, but affected farmers' net returns by holding down the hauling charges paid.

Competitive premiums were as widely used as subsidies to haulers, but the rates were much lower. Competitive premiums were paid on about 28 percent of the milk, at the average rate of 6.7 cents, or 2 cents per 100 pounds of all milk.

In addition to the more important kinds of payments, there were others, much less important, for volume, quality, and breed of cattle. The total amount of the less important premiums and other payments per 100 pounds of all milk purchased directly from producers was 0.14 cent.

Some of the firms in the market are producer-owned cooperatives, which perform various marketing services for their members. Bargaining associations may receive payments of several cents per 100 pounds to defray the cost of services. Part of the "cooperative deduction" is used for capital purposes, and is an investment rather than an expense. Cooperatives which have extensive processing operations may pay patronage dividends. In this study, no information was gathered as to the amount of such payments, which in some respects are equivalent to the profits of proprietary firms.

Average Equivalent Farm Prices

As has been explained, the announced price for milk used as fresh whole milk is a price for milk delivered to a milk plant, and it excludes a number of premiums. From the information just given, it is possible to calculate an "equivalent Class I price, including average premiums, f. o. b. the farm." This equivalent farm price in May 1956 was \$4.03 per 100 pounds. The relationship of this price to the announced Class I price is as follows:

Class I price, Zone I, milk containing 3.5 percent fat	\$4.13
Plus:	
Average bulk tank premium	.07
Competitive premiums	.02
Butterfat above 3.5 percent <u>8/</u>	<u>.01</u>
Total	\$4.23
Less:	
Location differential from Zone I to average zone of delivery by farmers	.02
Hauling charges from farm to plant paid by farmers	<u>.18</u>
Equivalent farm price	\$4.03

8/ The average butterfat content of fluid whole milk sold by handlers under Order 41 in May 1956, was 3.52 percent. The butterfat differential was 7.1 cents for each tenth of 1 percent.

For the 2.18 pounds of milk at the farm needed to supply 1 quart, or 2.15 pounds, of milk to the consumer, the equivalent farm price was 8.8 cents a quart. This compares with a similar price of 9.0 cents a quart calculated from the announced Class I price of \$4.13 per 100 pounds.

Equivalent Farm Prices, 1947-57

Equivalent farm prices which reflect all premiums, etc., cannot be calculated for months other than May 1956, because the needed information is lacking. Marketing margin computations for the period 1947-57 must continue to use the Class I price (including any general or marketwide premiums) as published in the Fluid Milk and Cream Report. For the 2.17 pounds of milk at the farm needed to supply one quart to the consumer, the equivalent farm price was 8.8 cents a quart.

THE COST OF MILK TO THE MILK DISTRIBUTOR

The milk supply for Chicago came from about 21,000 farms in 1956. Some of these farms delivered their milk directly to plants in the city; about one-third delivered to plants within 70 miles of City Hall. The rest delivered their milk to plants many miles from the city. At these "country plants," the milk was received, weighed, tested, cooled, and loaded into tank trucks to be hauled into the city. Practically all of the pasteurizing and bottling was done within the marketing area.

Location to Which Farmers Deliver Milk

It was explained previously that a milk dealer pays a higher price for milk delivered to a plant in the marketing area than for milk delivered to a country plant. This does not necessarily mean that the milk coming from a distant part of the milkshed can be delivered to the consumer any more cheaply than milk coming from a farm close to the city. The location differential is about offset by the added cost of hauling the milk a greater distance.

There are other complications in comparing the cost of milk to milk dealers when purchased from various sources. To illustrate some of the alternatives, we considered three cases:

1. Milk delivered by farmers directly to a plant in the marketing area.
2. Milk delivered by farmers to a plant in Zone 3 (85 to 100 miles) and sold by that plant to a plant in the marketing area.
3. Milk delivered to a plant in Zone 10 (190 to 205 miles) and sold by that plant to a plant in the marketing area.

The plant in the marketing area, purchasing directly from producers and paying the minimum order price plus average premiums characteristic of that zone, would have had a cost of milk at the receiving platform of \$4.31 per 100 pounds (table 6).

Table 6.--Milk for bottling purposes (Class I) purchased by milk dealers from specified sources: Cost per 100 pounds f. o. b. bottling plant, Chicago, Ill., May 1956

Charges and prices	Location of plant to which producers delivered		
	Marketing area	Zone 3 (85 - 100: miles)	Zone 10 (190 - 205 miles)
	Dollars	Dollars	Dollars
Items in total cost f. o. b. bottling plant:			
1. Class I price equivalent f. o. b. farms 1/.....	3.969	3.939	3.786
2. Hauling charge.....	.201	.151	.164
3. Bulk milk premium.....	.047	.053	2/
4. Hauling subsidy.....	.059	.015	2/
5. Competitive premium.....	.035	.013	2/
6. Plant handling allowance.....	---	.265	.310
7. Transportation, country plant to bottling plant.....	---	.203	.312
8. Total cost f. o. b. bottling plant....	3/4.311	4/4.558	4/4.572
Prices at specified stages of assembly:			
9. Minimum Class I price f. o. b. plant at which milk is received from farmers:	4.170	4.090	3.950
10. Price charged by country plant.....	---	5/4.355	5/4.260

- 1/ Line 1 equals line 9 minus line 2.
2/ None reported.
3/ Total of lines 1 through 5.
4/ Line 7 plus line 10.
5/ Line 10 equals line 6 plus line 9.

This cost does not include costs for receiving, weighing, and testing this milk. One would expect it to be lower than the cost of tank lots of milk purchased from country plants, and reports from plants surveyed showed the difference was 14 to 62 cents per 100 pounds.

Integrated and Nonintegrated Assembly

The comparisons in table 5 are based on actual sales by country plants to bottling plants in or near Chicago. Some of the larger firms operate both bottling plants and country plants. Transfers of milk among plants under the same ownership involve costs approximating those shown in table 5, but these costs were not analyzed for this study. Costs might be either lower or higher where both the country plant and the city plant are owned by the same firm.

Integrated firms have some choice as to how completely they will attempt to own and operate plants; they might choose to operate plants only where this is less costly than to rely on independent sources of milk. A firm owning only part of the country plants from which it receives milk could operate those plants and the country-to-city hauling nearly to capacity the year around. Independent sources would tend to bear a larger element of cost arising from excess capacity in such cases. On the other hand, a firm may choose to own and operate a country plant at costs somewhat higher than the charges usually made by independent plants and country-to-city haulers. This could become profitable when milk supplies are short, as they are occasionally during the fall. Country plant charges at such times tend to reflect the scarcity of milk, and to rise above costs.

If it had been thought necessary or desirable to study these costs in integrated firms, it would have been difficult to evaluate the data. Cost data in such a case may reflect management decisions as to how costs should be allocated for accounting purposes, rather than the cost and profit calculations that guide management in deciding whether or not to integrate.

Seasonal and Daily Changes

Charges for country-plant handling and for transportation between plants were lower in May than at other seasons of the year. Plant handling charges in May of 1956 were from 5 to 22 cents lower than in the preceding November at a selected group of plants. This seasonal variation in charges reflects the seasonal problem of balancing producers' deliveries of milk with consumers' needs. There is also a problem of obtaining a day-to-day balance as shown by average sales by days of the week during May and October at a group of country plants (table 7). Sales of these plants are lower in May than in October because in May there is more milk available at plants closer to market. Some country plants vary their handling charges throughout the week, having a lower charge on Friday and Saturday, when sales tend to be low. Others make lower charges to regular buyers than to buyers who order only occasionally during the month or during the season of low milk production. Trucking charges likewise may be higher for irregular shipments, and for shipments during the season of low milk production.

Table 7.--Sales of Class I milk by days of week, by selected group of country dairy plants

Day of week	October 1955	May 1956
	<u>1,000 pounds</u>	<u>1,000 pounds</u>
Sunday	246	53
Monday	360	139
Tuesday	394	96
Wednesday	358	189
Thursday	486	206
Friday	266	79
Saturday	379	48
Average.....	356	116

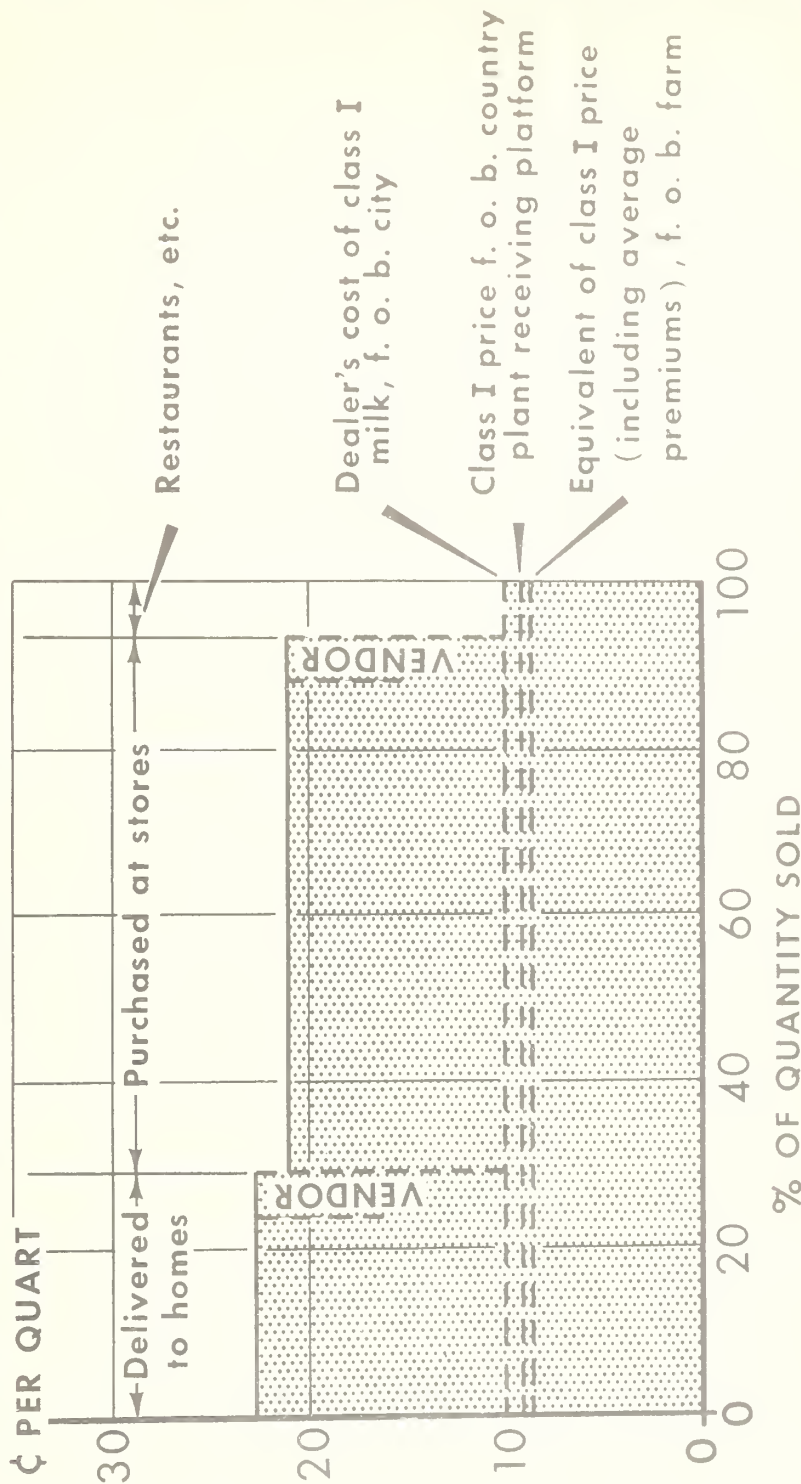
SELLING PRICES OF MILK DISTRIBUTORS

In smaller cities, a typical milk distributor buys milk from farmers, bottles it, and sells it to consumers. There are some distributors in Chicago who span the entire distance from the farmer to the consumer in this fashion. Some buy only part of their milk directly from farmers and make only part of their sales directly to consumers. And some milk distributors in Chicago buy no milk directly from farmers and sell none directly to consumers. Figure 2, based partly on estimates, shows the ways in which fresh whole milk was handled in Chicago in May 1956.

It is evident that milk is bought and sold in several kinds of transactions which were not included in this study. We have discussed consumers' purchases from stores and home delivery routes, milk dealers' purchases from farmers, and milk dealers' purchases from country plants. No information was obtained with respect to purchases from milk dealers by either vendors ^{9/} or retail stores. This segment of milk distribution is fiercely competitive. It would have taken more effort to obtain reliable price information than was available for this study. Consequently, in the following section on marketing margins for milk, it will not be possible to show margins separately for some types of marketing agencies that may be significant in the milk distribution system in Chicago.

^{9/} Milk deliverymen who own their own trucks, buy bottled milk from a milk dealer, and sell it on their own routes to either retail or wholesale customers, or both.

PRICE SPREADS FOR FRESH MILK BY MARKETING AGENCIES AND SERVICES



SOLD AT CHICAGO, MAY-JUNE 1956

U. S. DEPARTMENT OF AGRICULTURE

NEG. 6112-58141 AGRICULTURAL MARKETING SERVICE

Figure 2

PRICE SPREADS FOR FRESH WHOLE MILK

Size of Container and Place of Retail Sale

The farmers supplying milk to Chicago received at the farm the equivalent of 8.8 cents a quart for milk used for bottling (Class I) in Chicago in May 1956. The consumer paid an average of 21.5 cents a quart. Thus, the average marketing margin for fresh whole milk was 12.7 cents a quart. ^{10/}

The wide variations in prices actually paid at each level of sale have already been described. The 21.5 cents paid by consumers is a weighted average, as described on page 9, while the 8.8 cents received by farmers is an estimate based on quantities delivered to plants in each zone. The price to farmers is less than the Class I price, plus average premiums, by the amount of hauling charges paid by farmers.

The milk dealers' cost, f. o. b. city, was 10.0 cents a quart. This represents an average of amounts paid for milk purchased directly from producers and for milk purchased from country plants, including charges for hauling that milk to the city plant.

From the receiving platform of the bottling plant to the consumer, the average marketing margin was 11.5 cents a quart. This varied from 9.7 cents a quart average on milk purchased from stores in gallon containers to 14.7 cents a quart average on milk delivered to homes in quart bottles (fig. 3).

Marketing Agencies and Services

The average marketing margin differs for each of the methods of marketing. The relative importance of different marketing agencies and the approximate prices they receive are shown in figure 2. Quantities sold by vendors, restaurants, etc., are based on trade estimates, as are the marketing margins shown for stores and vendors.

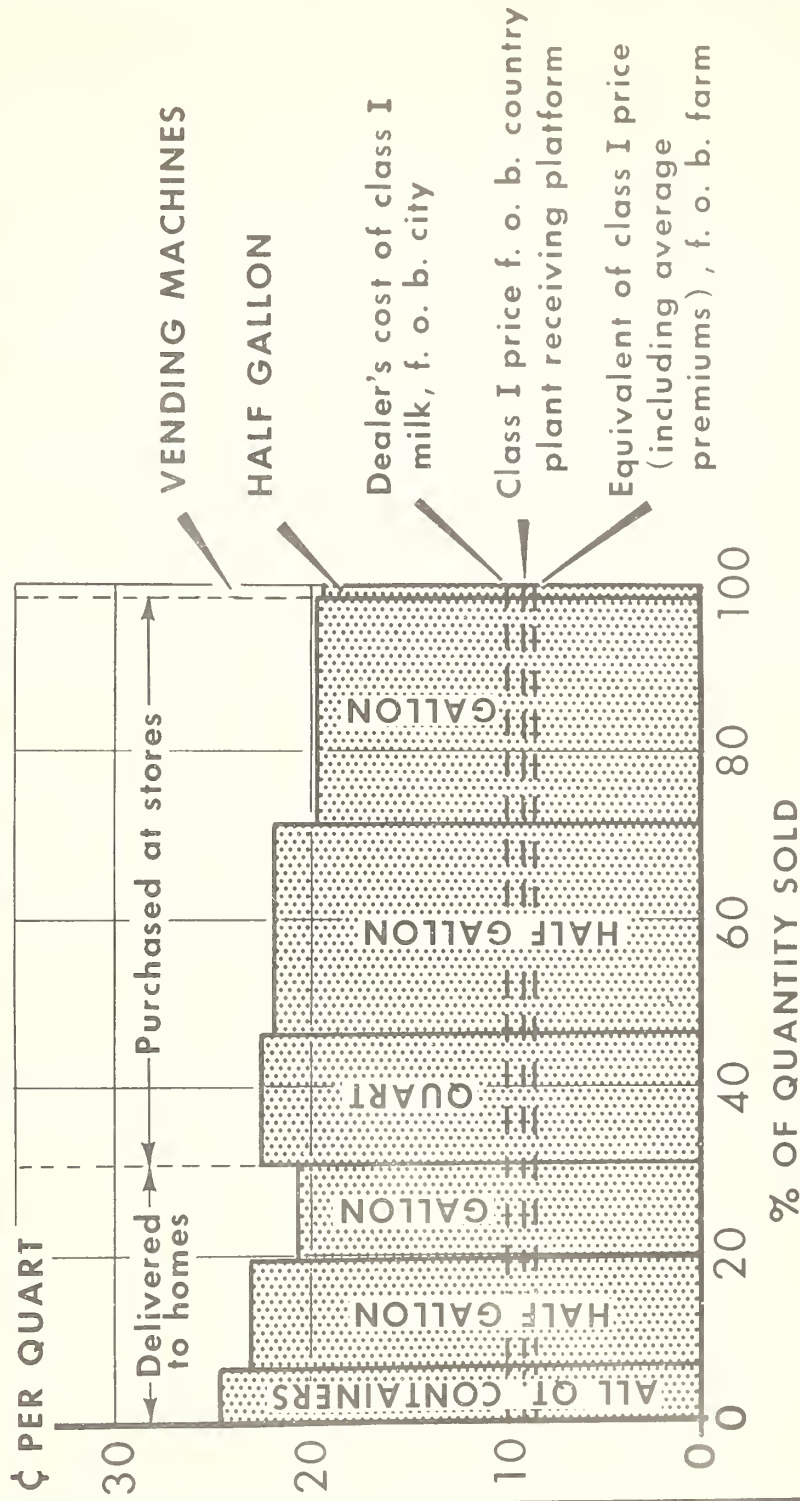
Location of Farm

The farmer's share of the consumer's dollar spent for fresh milk in very large milk markets depends in part on his distance from the city. The farmer delivering milk to a plant in the Chicago marketing area received 42 percent of the consumer's dollar. Milk delivered to a plant in zone 3 (85-100 miles from

^{10/} The farm price used in this calculation is for milk containing 3.5 percent of butterfat. This is about the average butterfat percentage in fresh whole milk in Chicago. These marketing margins allow for some loss in handling between the farm and the consumer. It has been estimated that 2.18 pounds of milk at the farm yield 1 quart of bottled milk, weighing 2.15 pounds, or 100 pounds of milk at the farm yield 45.87 quarts.

Farm to Consumer

PRICE SPREADS FOR FRESH MILK BY SIZE OF CONTAINER AND PLACE OF PURCHASE



SOLD AT CHICAGO, MAY - JUNE 1958

U. S. DEPARTMENT OF AGRICULTURE

NEG. 6113-58(4) AGRICULTURAL MARKETING SERVICE

Figure 3

Chicago) brought the farmer 41 percent, and in zone 10 (190-205 miles), 38 percent. What the farmer receives, for the purpose of these calculations, is based only on the Class I price. His blend or uniform price is lower (see p. 14).

1947-1957 Margins

To show trends in milk marketing margins from 1947 to 1957, we must fall back on simpler measures than those used in figures 2 and 3, as detailed data are not available for the longer period. For this purpose, we use for retail prices a weighted average calculated as described on page 9. This calculated price for May 1956 was 21.1 cents a quart, agreeing reasonably well with the 21.5 cents found in the household survey.

The "farm price" for the 1947-57 period is taken to be the price paid by dealers for milk for distribution in fluid form, as published in the Fluid Milk and Cream Report. It is identical with the minimum Class I price for zone 1 under Federal Order No. 41, except that it includes such general or marketwide premiums as were negotiated between producers and handlers. In May 1956, the equivalent farm price on this basis was 9.0 cents a quart, compared with an equivalent farm price of 8.8 cents a quart when all premiums, charges, and differentials are included. How these 2 figures are reconciled is shown on page 16.

The marketing margin for fresh whole milk in Chicago in May 1956, using all the information available from this study, was 12.7 cents a quart. Using only such data as are published regularly, the marketing margin was 12.1 cents. With retail prices represented only by the price of single quarts delivered to homes, the marketing margin for May 1956 was 17.0 cents, 34 to 40 percent wider than marketing margins which reflect fully the different sizes of containers and channels of sale.

During the period from 1947 to 1956, the price of single quarts delivered to homes differed increasingly from the weighted average retail price. The marketing margin on a single-quart basis during 1947 was about 16 percent higher than that based on all sizes of containers.

APPENDIX

Procedure

Survey of Households

The survey of households was conducted for AMS by the Bureau of the Census. The sample of 806 households used in the survey had been used for the monthly survey of the labor force until the preceding October 1955. The sample represented the Chicago metropolitan area. It was a multistage area probability sample, the areas consisting of census tracts, blocks, and clusters of households averaging about 6 families per cluster.

Interviewers were supplied with a questionnaire asking about quantities purchased, buying practices of the household, and selling practices of home-delivery routemen.

Interviews were completed with 733 of the 806 households in the sample. Information was obtained for each purchase made on each of the 7 days preceding the interview. Wherever practicable, price information was taken from sales slips. In some instances, prices were verified by telephoning the store at which the respondent had purchased milk.

Survey of Milk Dealers

A sample of milk dealers selling Class I milk in the milk marketing area under Federal Milk Marketing Order No. 41 was asked to furnish information about its purchases of milk. The Chicago milk marketing area is somewhat smaller than the standard metropolitan area, but larger than the city of Chicago. The sample included the 6 dealers having the largest sales of Class I milk, and 8 of the 75 smaller dealers. The 6 larger dealers accounted for 23 percent of the milk purchased directly from producers, and for 57 percent of the sales of Class I milk. Two questionnaires were sent to the 14 dealers, one asking about their payments for milk purchased directly from farmers, and one asking about purchases of milk from country plants. All but one of the dealers furnished the information asked for. The one not responding was one of the smaller dealers who purchased no milk directly from producers.

Table 8.--Fresh whole milk: Selected prices and price spreads, Chicago, Ill., 1947-57, by months

Year and month	Retail prices			Price spreads	
	Prices				
	: paid by : :dealers <u>1</u> / ₂ : :per quart:	: Single quarts : : delivered : : to homes <u>2</u> / ₃ :	: Weighted : : average <u>3</u> / ₄ : : per quart :	: Based on : : single-quart : : price :	: Based on : : weighted : : average price : : per quart :
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
1947					
January...	10.0	21.5	19.8	11.5	9.8
February...	9.3	20.5	18.8	11.2	9.5
March.....	9.2	20.5	18.8	11.3	9.6
April.....	8.9	20.5	18.8	11.6	9.9
May.....	7.7	20.5	18.8	12.8	11.1
June.....	7.6	19.5	17.8	11.9	10.2
July.....	8.4	20.5	18.8	12.1	10.4
August....	9.1	20.5	18.8	11.4	9.7
September..	9.5	21.5	19.8	12.0	10.3
October...	9.9	22.5	20.8	12.6	10.9
November...	9.9	22.5	20.8	12.6	10.9
December...	9.4	21.5	19.8	12.1	10.4
1948					
January...	10.8	22.5	20.8	11.7	10.0
February...	10.9	22.5	20.8	11.6	9.9
March.....	10.6	21.5	19.8	10.9	9.2
April.....	10.3	21.5	19.8	11.2	9.5
May.....	9.9	21.5	19.8	11.6	9.9
June.....	10.1	22.0	20.3	11.9	10.2
July.....	10.6	23.0	21.3	12.4	10.7
August....	11.5	24.0	22.3	12.5	10.8
September..	11.3	24.0	22.3	12.7	11.0
October...	10.6	23.5	21.8	12.9	11.2
November...	9.5	22.5	20.8	13.0	11.3
December...	8.8	21.5	19.8	12.7	11.0

Continued

Table 8.--Fresh whole milk: Selected prices and price spreads, Chicago, Ill.
1947-57, by months--Continued

Year and month	Retail prices			Price spreads	
	Prices	Single quarts delivered to homes <u>2</u> /	Weighted average <u>3</u> / per quart	Based on single-quart price	Based on weighted average price per quart
	: paid by dealers <u>1</u> / per quart:				
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
1949					
January...	9.0	21.5	19.8	12.5	10.8
February...	8.6	21.5	19.8	12.9	11.2
March.....	8.2	20.5	18.8	12.3	10.6
April.....	7.8	20.5	18.8	12.7	11.0
May.....	7.3	19.5	17.8	12.2	10.5
June.....	7.3	20.5	18.8	13.2	11.5
July.....	7.7	20.5	18.8	12.8	11.1
August.....	8.4	21.5	19.5	13.1	11.1
September..	8.6	21.5	19.6	12.9	11.0
October...	8.7	22.0	20.2	13.3	11.5
November...	8.7	22.0	20.2	13.3	11.5
December...	8.3	21.5	19.7	13.2	11.4
1950					
January...	8.3	21.5	19.6	13.2	11.3
February...	8.2	21.5	19.6	13.3	11.4
March.....	8.2	21.5	19.6	13.3	11.4
April.....	7.9	21.5	19.6	13.6	11.7
May.....	7.3	20.5	18.7	13.2	11.4
June.....	7.2	20.5	18.7	13.3	11.5
July.....	7.6	21.0	19.1	13.4	11.5
August.....	8.1	21.5	19.6	13.4	11.5
September..	8.2	21.5	19.6	13.3	11.4
October...	8.4	21.5	19.6	13.1	11.2
November...	8.5	21.5	19.6	13.0	11.1
December...	8.3	22.0	20.1	13.7	11.8

Continued

Table 8.—Fresh whole milk: Selected prices and price spreads, Chicago, Ill.
1947-57, by months--Continued

Year and month	Retail prices			Price spreads	
	Prices				
	: paid by : dealers <u>1</u> / : per quart:	: Single quarts : delivered : to homes <u>2</u> / :	: Weighted : average <u>3</u> / : per quart	: Based on : single-quart : price	: Based on : weighted : average price : per quart
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
1951					
January....	9.0	22.5	20.4	13.5	11.4
February..	9.5	23.0	20.9	13.5	11.4
March.....	9.7	23.0	20.9	13.3	11.2
April.....	9.8	23.5	21.4	13.7	11.6
May.....	9.0	23.5	21.4	14.5	12.4
June.....	8.9	23.5	21.4	14.6	12.5
July.....	10.1	23.5	21.4	13.4	11.3
August.....	10.0	24.0	21.9	14.0	11.9
September..	9.8	24.0	21.9	14.2	12.1
October....	9.7	24.0	21.8	14.3	12.1
November..	9.8	24.0	21.8	14.2	12.0
December..	9.6	24.5	22.3	14.9	12.7
1952					
January....	10.0	24.5	22.3	14.5	12.3
February..	10.2	25.0	22.7	14.8	12.5
March.....	10.9	25.5	23.2	14.6	12.3
April.....	10.4	25.0	22.7	14.6	12.3
May.....	9.6	24.5	22.2	14.9	12.6
June.....	9.5	24.0	21.7	14.5	12.2
July.....	10.6	25.5	23.2	14.9	12.6
August.....	10.7	25.5	23.2	14.8	12.5
September..	11.0	26.0	23.7	15.0	12.7
October....	11.3	26.5	24.2	15.2	12.9
November..	11.2	26.5	24.2	15.3	13.0
December..	10.4	25.5	22.9	15.1	12.5

Continued

Table 8.--Fresh whole milk: Selected prices and price spreads, Chicago, Ill.
1947-57, by months--Continued

Year and month	Retail price			Price spreads	
	Prices				
	: paid by : : dealers <u>1</u> /: : per quart:	: Single quarts : : delivered : : to homes <u>2</u> /	: Weighted : : average <u>3</u> / : per quart	: Based on : : single-quart : : price	: Based on : : weighted : : average price : : per quart
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
1953					
January....	9.8	25.0	22.1	15.2	12.3
February...	9.4	24.5	21.4	15.1	12.0
March.....	9.3	24.5	21.4	15.2	12.1
April.....	9.2	24.5	21.4	15.3	12.2
May.....	8.4	24.5	21.4	16.1	13.0
June.....	8.2	24.5	21.4	16.3	13.2
July.....	9.2	25.5	22.3	16.3	13.1
August.....	9.2	25.5	22.1	16.3	12.9
September..	9.2	25.5	22.1	16.3	12.9
October....	9.2	25.5	22.0	16.3	12.8
November...	9.3	25.5	22.0	16.2	12.7
December...	8.5	25.0	21.0	16.5	12.5
1954					
January....	8.4	25.0	20.9	16.6	12.5
February...	8.4	25.0	20.8	16.6	12.4
March.....	8.4	25.0	20.8	16.6	12.4
April.....	8.3	25.0	21.1	16.7	12.8
May.....	7.2	24.0	20.2	16.8	13.0
June.....	7.0	24.0	20.1	17.0	13.1
July.....	8.1	25.0	21.2	16.9	13.1
August.....	8.1	25.0	21.1	16.9	13.0
September..	8.3	25.0	21.1	16.7	12.8
October....	8.4	25.5	22.2	17.1	13.8
November...	8.6	25.5	21.6	16.9	13.0
December...	8.3	25.5	21.6	17.2	13.3

Continued

Table 8.--Fresh whole milk: Selected prices and price spreads, Chicago, Ill.
1947-57, by months--Continued

Year and month	Retail price			Price spreads	
	Prices				
	: paid by : : dealers <u>1</u> /: : per quart:	: Single quarts : : delivered : : to homes <u>2</u> /:	: Weighted : : average <u>3</u> / : per quart	: Based on : : single-quart : : price	: Based on : : weighted : : average price : : per quart
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
1955					
January...	8.3	25.5	21.5	17.2	13.2
February...	8.2	25.5	21.9	17.3	13.7
March.....	7.6	25.5	21.8	17.9	14.2
April.....	7.7	25.5	21.8	17.8	14.1
May.....	7.6	25.5	20.7	17.9	13.1
June.....	7.6	26.0	21.3	18.4	13.7
July.....	8.1	25.0	20.1	16.9	12.0
August....	8.7	26.0	21.1	17.3	12.4
September..	8.8	26.0	19.9	17.2	11.1
October...	9.0	26.0	19.9	17.0	10.9
November..	9.1	25.0	19.4	15.9	10.3
December..	8.8	25.0	20.2	16.2	11.4
1956					
January...	8.7	25.0	20.1	16.3	11.4
February...	8.7	25.0	20.1	16.3	11.4
March.....	8.1	25.0	20.1	16.9	12.0
April.....	8.0	25.0	20.1	17.0	12.1
May.....	9.0	26.0	21.1	17.0	12.1
June.....	9.0	26.0	21.0	17.0	12.0
July.....	9.0	26.0	20.3	17.0	11.3
August....	9.0	26.0	20.4	17.0	11.4
September..	9.0	26.0	20.6	17.0	11.6
October...	9.2	26.0	21.0	16.8	11.8
November..	9.2	26.0	21.0	16.8	11.8
December..	8.9	26.0	20.6	17.1	11.7

Continued

Table 8.--Fresh whole milk: Selected prices and price spreads, Chicago, Ill.
1947-57, by months--Continued

Year and month	Prices : paid by : dealers <u>1/</u> : per quart	Retail price		Price spreads	
		Single quarts delivered to homes <u>2/</u>	Weighted average <u>3/</u> per quart	Based on single-quart price	Based on weighted average price per quart
	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>	<u>Cents</u>
1957					
January...	8.8	26.0	20.6	17.2	11.8
February...	8.7	26.0	20.6	17.3	11.9
March.....	8.2	25.5	20.2	17.3	12.0
April.....	8.6	25.5	20.6	16.9	12.0
May.....	8.4	25.5	20.6	17.1	12.2
June.....	8.3	25.5	18.8	17.2	10.5
July.....	8.2	25.0	19.9	16.8	11.7
August.....	8.5	25.5	20.8	17.0	12.3
September..	8.6	25.5	20.7	16.9	12.1
October...	9.0	25.5	20.7	16.5	11.7
November...	9.0	25.5	21.1	16.5	12.1
December...	9.0	25.5	21.1	16.5	12.1

1/ Prices paid for Class I milk delivered to plants in the 55-70-mile zone, converted from hundredweight to quart basis at 2.18 pounds per quart. See p. 22 of the text.

2/ Lowest price of range reported in Fluid Milk and Cream Report.

3/ Based on retail prices of milk in quart, half-gallon and gallon containers, delivered to homes and at stores. See p. 9 of the text.



